Remarks

This response is intended as a full and complete response to the non-final Office Action mailed February 23, 2005. In the Office Action, the Examiner notes that claims 1-4 and 6-16 are pending and rejected. By this response claim 6 is cancelled, claims 1, 7-9, and 12 are amended, and new claim 17 is added.

In view of the above amendments and the following discussion, Applicants submit that none of the claims now pending in the application are obvious under the provisions of 35 U.S.C. §103. Thus, Applicants believe that all of these claims are now in allowable form.

It is to be understood that Applicants, by amending the claims, do not acquiesce to the Examiner's characterizations of the art of record or to Applicants' subject matter recited in the pending claims. Further, Applicants are not acquiescing to the Examiner's statements as to the applicability of the art of record to the pending claims by filing the instant responsive amendments.

REJECTIONS

35 U.S.C. §103

Claims 1-4, 6, 9-11 and 13-16

The Examiner has rejected claims 1-4, 6, 9-11 and 13-16 under 35 U.S.C. §103(a) as being unpatentable over Fan et al. (U.S. Patent 6,324,165 B1, hereinafter "Fan") in view of Basso et al. (U.S. Patent 5,787,071, hereinafter "Basso"). Applicants respectfully traverse the rejection.

In general, Fan discloses a large capacity, multiclass ATM switch architecture. In particular, Fan teaches an ATM switch that supports multiple traffic classes and quality-of-service (QoS) guarantees (i.e., which supports both real-time traffic classes with strict QoS requirements, e.g., CBR and VBR, and non-real-time traffic classes with less stringent requirements, e.g., ABR and UBR). Fan, however, fails to teach each and every element of Applicants'

invention as recited in independent claim 1. Namely, as conceded by the Examiner, Fan fails to teach, show, or suggest selective backpressure signaling.

Furthermore, Basso fails to bridge the substantial gap between Fan and Applicants' invention. In general, Basso teaches a hop-by-hop flow control system that generates backpressure notification to upstream nodes when traffic entering a node exceeds a threshold. (Basso, Abstract). In particular, Basso teaches that "[t]he backpressure mechanism encompasses two primitives, a selective backpressure primitive which allows any node to control one connection, and a global backpressure primitive..." (Basso, Col. 2, Lines 44-47). Basso, however, does not teach each and every element of Applicants' independent claim 1, as amended.

Namely, Basso fails to teach or suggest that the selective backpressure is generated in response to respective credit counters associated with the component traffic streams reaching a threshold level. In particular, Applicants' amended claim 1 positive recites:

> "1. A method of regulating traffic in a communications network comprising the steps of:
> aggregating one or more component traffic flows into a component traffic stream;
> aggregating one or more component traffic streams into an aggregate stream;
> carrying the aggregate stream in a single, FIFO queue; and
> generating selective backpressure on selected ones of the component traffic streams such that selected ones of the component streams are desirably regulated;
> said selective backpressure being generated in response to respective credit counters associated with said selected ones of the component traffic streams reaching a threshold level."
> (Emphasis added.)

The Applicants' specification specifically recites that "[t]he disclosed credit-based backpressure mechanism...uses the concept of service credit rather than actual or virtual queue length." (Spec., Page 3, Lines 9-12). In the Applicants' invention, the credit function of a component traffic stream is incremented when the scheduler selects that component traffic stream for service, regardless of the component traffic stream to which the data item at the front of the aggregate

queue belongs. As such, Applicants' invention of at least claim 1 generates selective backpressure based on a credit function associated with each of the component traffic streams aggregated in the aggregate FIFO queue.

Basso, on the other hand, teaches application of selective backpressure to a connection based on queue length. Basso specifically teaches that "[w]hen a cell is received in the IBB 60 of a node 50 from a connection Ck to queue 610 and the number of cells 611 from queue 610 on port Pi queued in the IBB is equal [to] or greater than IBB Th 66, the node generates and sends on Port Pi a selective backpressure signal." (Basso, Col. 6, Lines 29-33). Thus, Basso specifically teaches that selective backpressure is generated using the number of cells in a queue (i.e., queue length).

The generation of selective backpressure based on queue length, as taught in Basso, is simply not generation of selective backpressure based on service credit using respective credit counters associated with each of the component traffic streams, as taught in Applicants' claim 1. Furthermore, nowhere in Basso is there any teaching, showing or suggestion of generating selective backpressure based on credit counters associated with each of the component traffic stream. As such, Applicants submit that Basso also fails to teach, show, or suggest Applicants' invention of at least claim 1.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Thus, it is impermissible to focus either on the "gist" or "core" of the invention, Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 USPQ 416, 420 (Fed. Cir. 1986) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). The Fan and Basso references, alone or in combination, fail to teach or suggest the Applicants' invention as a whole.

Thus, the Applicants submit that independent claim 1 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, Applicants' remarks presented above with respect to claim 1 apply with equal force to the corresponding "means" clauses of new independent claim 17. Thus, Applicants submit that independent claim 17 is also not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

Furthermore, for at least the reasons set forth above with respect to independent claim 1, dependent claims 2-4, 6, 9-11 and 13-16, which depend directly or indirectly from independent claim 1 and recite additional features thereof, are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, Applicants respectfully request that the Examiner's rejection be withdrawn.

Claims 7, 8 and 12

The Examiner has rejected claims 7, 8, and 12 under 35 U.S.C. §103(a) as being unpatentable over Fan in view of Basso further in view of Chen et al. (U.S. Patent 6,188,674 B1, hereinafter "Chen"). Applicants respectfully traverse the rejection.

For at least the reasons set forth above with respect to claim 1, Fan and Basso alone or in combination fail to teach or suggest Applicants' claimed invention. In particular, Fan and Basso, alone or in combination, fail to teach, show, or suggest that selective backpressure is generated in response to respective credit counters associated with selected ones of the component traffic streams reaching a threshold level. Furthermore, Chen fails to bridge the substantial gap between Fan and Basso and the Applicants' invention.

In general, Chen teaches measurement of packet losses in high-speed switches by identifying traffic flows in the ingress side of switches and measuring packets losses for the identified flows on the egress side of the switches. (Chen, Abstract). In particular, Chen discloses that "loss measurements are achieved by selecting the particular traffic flow, or flows, to be measured, identifying those flows in the ingress modules, marking each of the flows, and observing the

packets of the flows at the egress modules." (Chen, Col. 2, Lines 8-12). Chen, however, fails to teach, show, or suggest each and every element of Applicants' invention. Namely, Chen fails to teach, show, or suggest generating selective backpressure in response to respective credit counters associated with selected ones of the component traffic streams reaching a threshold level.

The Examiner asserts that Chen discloses the use of a credit counter for each component traffic stream that initializes, decrements, increments, and resets the counter as desires. (Office Action, Pg. 4). The Applicants' respectfully submit, however, that Chen merely discloses an ingress module for breaking a packet flow into packet blocks having respective starting block sizes, and an egress module for determining respective ending block sizes of the packet blocks received at the egress module. Chen further discloses comparing the starting block sizes to the ending block sizes in order to determine the number of packets, associated with each packet block, that are lost between the ingress module and egress module.

The packet loss measurement method of Chen, however, is completely different from the credit counter of Applicants' invention. As described herein, Applicants' invention of at least claim 1 generates selective backpressure based on a credit function associated with each of the component traffic streams aggregated in an aggregate FIFO queue. The credit function of Applicants' invention does not measure packet losses. Rather, the credit function of the present invention is implemented according to the actual services attributed to the component traffic stream by a downstream scheduler.

In particular, Applicants' invention teaches that the credit function of a component traffic stream is incremented when the scheduler selects that component traffic stream for service, regardless of the component traffic stream to which the data item at the front of the aggregate queue belongs. Thus, the determination of the number of packets lost from a block of packets, as taught in Chen, does provide an indication of service credit, as taught in Applicants' invention. Furthermore, Chen is completely devoid of any teaching, or suggestion of generating selective backpressure in response in response to respective credit

counters associated with selected ones of the component traffic streams reaching a threshold level.

Moreover, even if the teachings of Fan, Basso, and Chen could somehow be operatively combined, the result would still be a system in which selective backpressure is generated based upon queue length or a number of lost packets. Since loss of packets may impact queue length, computation of the number of lost packets as taught in Chen merely comprises another method of measuring queue length. As such, there would be no motivation to incorporate the teachings of Chen into a system comprising a combination of the teachings of Fan and Basso. Thus, Fan, Basso, and Chen, alone and in combination, fail to teach Applicants' invention as a whole.

As such, Applicants submit that independent claim 1 is not obvious and fully satisfies the requirements of 35 U.S.C. §103. Furthermore, for at least the reasons set forth above with respect to independent claim 1, dependent claims 7, 8 and 12, which depend directly or indirectly from independent claim 1 and recite additional features thereof, are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, Applicants respectfully request that the Examiner's rejection be withdrawn.

CONCLUSION

Applicants submit that claims 1-4 and 6-17 are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

5/23/05

E J Wall

Eamon J. Wall, Attorney
Reg. No. 39,414
(732) 530-9404

Moser, Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Suite 100
Shrewsbury, New Jersey 07702